PROCEDURES FOR THE CHECKING OF SIEVING THOROUGHNESS OF MECHANICAL SHAKERS AASHTO T 27

A. PURPOSE

This method is intended to provide instruction for the verification of sieving adequacy of mechanical sieve shakers.

B. APPARATUS REQUIRED

1. Stop watch readable to 0.1 seconds
2. Calibrated balance capable of weighing the principal sample weight of the sample being tested. (M 231, Table 2)

C. PROCEDURE

Determine the weight of the material to be sieved. Record this weight as Original Total Sample Weight. Then sieve the material for a minimum period of 10 minutes ± 30 seconds. When this is completed, take the material on each sieve and hand sieve it, using the appropriate sieve, for one minute. Hand sieve in the following manner: Hold the individual sieve, provided with a snug-fitting pan and cover, in a slightly inclined position in one hand. Strike the side of the sieve sharply and with an upward motion against the heel of the other hand at the rate of about 150 times per minute; turn the sieve about one-sixth of a revolution at intervals of about 25 strokes. After hand sieving all the material for one minute, determine the weight of the material passing the sieve (the material is in the pan). Record this weight. After the material is weighed, add it to the next smaller sieve. Continue this procedure until all the material on each sieve has been hand sieved. In determining sufficiency of sieving for sizes larger than the 4.75 mm (No. 4) sieve, limit the material on the sieve to a single layer of particles. Care should be taken to not overload the sieves. To determine sufficiency of each sieve, divide the amount passing during hand sieving by the Original Total Sample weight.

D. TOLERANCE

Sieving thoroughness is considered to be sufficient by the mechanical shaker if no more than 0.5% by weight of the total sample passes any sieve during one (1) minute of continuous hand sieving as described in AASHTO Test Method T 27, Section 7.4. The mechanical shaker shall impact vertical and lateral motion to the sieve so as to present different orientation to the sieving surface to insure sieving adequacy as described in AASHTO T 27, Section 7.4.

EQUIPMENT VERIFICATION RECORD

Certified By: _____ Date: _____

Equipment: Mechanical Shakers Used for AASTHO T 27 Location (Lab): _____

Identification No.: _____ Verification Frequency: 12 months

Previous Verification Date: _____ Next Due Date: _____

Verification Equipment Used: Stop watch (readable to 0.1 sec.), ID Number: _____

Calibrated Balance (readable to 1.0 g and of a capacity to weigh the principle sample), SN: _____

Verification Procedure: (In-house) OMR-CVP-1 / AASHTO T 27

Sieve	I D No.	Wt. Retained After 10 min. Sieving	Wt. Passing After 1 min. Hand-sieving	% of Total Sample Weight	Wt. Retained After 12 min.	Wt. Passing After 1 min. Hand-sieving	% of Total Sample Weight
37.5 mm (1.5")							
25.0 mm (1.0")							
19.0 mm (¾")							
12.5 mm (½")							
9.5 mm (3/8")							
4.75 mm (#4)							
2.36 mm (#8)							
2.0 mm (#10)							
1.18 mm (#16)							
600 µm (#30)							
450 µm (#40)							
300 µm (#50)							
150 µm (#100)							
75 µm (#200)							
Pan							

Note: If 12 minutes is not sufficient to obtain sieving sufficiency, additional one minute increases in sieving time may be used until sieving sufficiency is obtained. Caution should be used to assure that the sample is not "breaking down" from the sieving.

Note: For an eight-inch diameter sieve, the sample weight on each sieve should not exceed 194 g. To prevent overloading "breaker" sieves should be used.